DOCUMENT RESUME

ED 399 395 CE 072 480

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TITLE Fostering Entrepreneurship through Business Incubation: The Role and Prospects of Postsecondary Vocational-Technical Education. Report 1: Survey of Business Incubator Clients and Managers.
INSTITUTION National Center for Research in Vocational Education, Berkeley, CA.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE Jul 96
CONTRACT V051A30003-95A; V051A30004-95A
NOTE 71p.; For related reports, see CE 072 481-482.
AVAILABLE FROM NCRVE Materials Distribution Service, 46 Horrabin Hall, Western Illinois University, Macomb, IL 61455; phone: (800) 637-7652 (order no. MDS-893: $6.50).
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Business Administration; *College Role; Educational Research; *Entrepreneurship; Postsecondary Education; Role of Education; *School Role; Small Businesses; Vocational Education
IDENTIFIERS *Business Incubators

ABSTRACT

A national survey examined the collective experiences of entrepreneurs, business incubator managers, and postsecondary institutions involved in educational and training strategies aimed at fostering entrepreneurship. The sample included incubators sponsored by universities (n=75), two-year colleges (n=25), and other sources (n=100). The survey also targeted 400 clients of incubators. Questionnaires were returned from 40 percent of incubator managers and 45 percent of incubator clients. Results showed a limited contribution of two-year colleges in business incubation; they appeared to be providing primarily commercial space at low cost and clerical support to entrepreneurs rather than consulting services and strategies aimed at fostering entrepreneurship. Although incubators sponsored by two-year colleges appeared to be supporting a slightly more diverse population of entrepreneurs in comparison to university-sponsored incubators, both managers and in-house clients were predominantly represented by Caucasian males. Five entrepreneurial characteristics were identified by managers and entrepreneurs: personal characteristics, technical preparation, business and management skills, entrepreneurial vision, and interpersonal skills. The contribution of two-year colleges to the business and technical preparation of entrepreneurs was disproportionately low in comparison to the contribution of four-year colleges and graduate schools. (Appendixes include 30 references and the survey instruments.) (YLB)

ED 399 395

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National Center for Research in
Vocational Education

University of California, Berkeley

FOSTERING ENTREPRENEURSHIP THROUGH BUSINESS INCUBATION: THE ROLE AND PROSPECTS OF POSTSECONDARY VOCATIONAL-TECHNICAL EDUCATION

REPORT 1: SURVEY OF BUSINESS INCUBATOR CLIENTS AND MANAGERS

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REPORT 1: SURVEY OF BUSINESS INCUBATOR CLIENTS AND MANAGERS

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Supported by
The Office of Vocational and Adult Education,
U.S. Department of Education

July, 1996 MDS-893

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education
Grant Number:	V051A30003-95A/V051A30004-95A
Act under which Funds Administered:	Carl D. Perkins Vocational Education Act P.L. 98-524
Source of Grant:	Office of Vocational and Adult Education U.S. Department of Education Washington, DC 20202
Grantee:	The Regents of the University of California c/o National Center for Research in Vocational Education 2150 Shattuck Avenue, Suite 1250 Berkeley, CA 94720-1674
Director:	David Stern
Percent of Total Grant Financed by Federal Money:	100%
Dollar Amount of Federal Funds for Grant:	$6,000,000

Disclaimer:

This publication was prepared pursuant to a grant with the Office of Vocational and Adult Education, U.S. Department of Education. Grantees undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Department of Education position or policy.

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PREFACE

This is the first in a series of three reports on the roles and prospects of two-year colleges in promoting community development through business incubation and related services. This report presents findings derived from a survey of business incubator managers and clients to describe the experiences of entrepreneurs in business incubation and to better understand the efforts of community colleges in promoting community development. Further insights in this regard can be found in Report 2 which describes various case studies of business incubators operating under different sponsorship arrangements, including support from two-year colleges. A summary of opportunities to expand the contribution of community colleges in economic development through business incubation and related services is provided in Report 3 of this series.

This report is organized into three major sections: a survey of incubator clients, a survey of incubator managers, and a discussion of results. This is followed by an outline of implications for postsecondary vocational-technical education in fostering economic development and entrepreneurship in the community via business incubation and other potential related services. Finally, a brief discussion is presented on the potential opportunities to expand students' exposure to alternative career paths—entrepreneurship options—within the context of school-to-work and emerging vocational programs.

This research was supported by the National Center for Research in Vocational Education (NCRVE) and conducted in collaboration with the National Business Incubation Association (NBIA). Dinah Adkins, NBIA Executive Director; Peter Bearse, President of Development Strategies Corporation, Gloucester, Massachusetts; and Gregg A. Lichtenstein, University of Pennsylvania, served as our Advisory Group. Their insights and expertise in the fields of economic development and entrepreneurship were invaluable to planning and designing this survey. The contribution of Dinah Adkins, in particular, was key in facilitating and endorsing our efforts to survey NBIA incubator members.

We would also like to extend our appreciation to June Lavelle, Executive Director of Lavelle Incubator Development from Chicago, Illinois, who gave us some advice at earlier stages of our research design. Brian O'Malley, Director of the Milwaukee Enterprise Center-North, and Miguel Berry, Director of the Milwaukee Enterprise Center-South were also helpful in facilitating a pilot test of our survey instruments.

The contribution of L. Allen Phelps, Director of the Center on Education and Work, is also recognized. We appreciate his advice to refine our project design and his detailed review of project materials.

EXECUTIVE SUMMARY

This report presents the results of a national survey of entrepreneurs in business incubation and business incubator managers. The purpose of the survey was to examine the collective experiences of entrepreneurs, business incubator managers, and postsecondary institutions involved in educational and training strategies aimed at fostering entrepreneurship. The experience of entrepreneurs in business incubation—an environment where business owners are nurtured and provided with opportunities to develop entrepreneurial skills—was viewed as an appropriate medium to gather rich insights about entrepreneurship. The study derived from the need to describe broader education and training systems in tune with current skills demanded in the workplace and recent education reforms seeking to establish creative partnerships to improve the preparation of workers for alternative career paths (Bailey, 1994; Stasz, 1995).

Through business incubation—a strategy to foster community development by nurturing the development and growth of new small firms—community development agencies, universities, two-year colleges, and a combination of sponsors seek to promote entrepreneurial talent and jobs, revitalize local economies, and assist in the development of technology. Thus, in collaboration with the National Business Incubation Association (NBIA), a national survey of business incubator managers and clients was conducted to develop a shared understanding of entrepreneurship development in business incubation, and to identify opportunities for two-year colleges to develop entrepreneurship as an alternative career path for individuals with diverse backgrounds.

Survey results were consistent with previous research on business incubation (Campbell, 1987; Lichtenstein, 1992; National Council for Urban Economic Development, 1985; Smilor & Gill, 1986). The results showed a limited contribution of two-year colleges in business incubation and suggested a number of implications for improvement of these connecting activities. Two-year colleges appeared to be providing primarily commercial space at low cost and clerical support to entrepreneurs rather than consulting services and strategies aimed at fostering entrepreneurship. Limitations in management arrangements (e.g., managers' spending considerable time in fundraising activities and building maintenance) seemed to prevent managers from focusing on the broader mission of business incubators, that is, to provide an environment conducive for development of entrepreneurship through consulting services, and through education and training activities.

Further, although two-year college-sponsored incubators appeared to be supporting a slightly more diverse population of entrepreneurs in comparison to university-sponsored incubators, both managers and in-house clients were predominantly represented by Caucasian males. Minorities and women continue to be disproportionately represented, both as entrepreneurs and in incubator management positions.

Five entrepreneurial characteristics were identified by managers and entrepreneurs. These include personal characteristics (intrinsic motivation, hard work values), technical preparation, business and management skills, the capacity to utilize available resources and information to take advantage of business opportunities (entrepreneurial vision), and interpersonal skills to communicate effectively with others and to understand the social impact of business development. Also, entrepreneurs and incubator managers recognized the need for education and training opportunities to assist in business development and growth. However, the contribution of two-year colleges to the business and technical preparation of entrepreneurs was disproportionately low in comparison to the contribution of four-year colleges and graduate schools. Two-year community college faculty and resources appeared to be underutilized in comparison to university faculty who contributed to a greater extent in incubators sponsored by universities and other organizations in the community.

Several opportunities to improve services provided during the start-up, survival period, and expansion and growth stages were identified. Business and technical services, and access to information systems and technology are but a few of the opportunities to support entrepreneurs through their business development. The implications for two-year community colleges lie in the revision and implementation of an expanded role to prepare students for a productive school-to-work transition, help individuals ease the transition to business owners, support the needs of the established local industry, and become proactive players in the development of the community. In the context of current education reforms, the implications are presented in four areas: (1) integration of entrepreneurship content into two-year curriculum activities, (2) opportunities for exposure and exploration of entrepreneurial environments, (3) connecting activities with secondary institutions, and (4) integration of entrepreneurship content in secondary curriculum activities.

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BACKGROUND

It has been widely documented that the American workplace is rapidly changing in response to global competition and the application of new technologies. These changes are placing an increasing demand for highly skilled workers who can adapt to and function in high-performance jobs. However, employers and higher education administrators have indicated that the majority of high school students who enter the workforce do not possess the necessary skills for effective and rewarding participation in the workplace (Committee for Economic Development, 1992; National Center on Education and the Economy, 1990). As a result, many unskilled individuals are quickly losing their earning power and joining the ranks of the unemployed. Indeed, the lack of adequate preparation for high-performance jobs results in significant transition problems for about half of the high school graduates annually (William T. Grant Foundation, 1988).

Although declining productivity is usually associated with deficient preparation of workers, today's highly competitive global economy is also requiring new management styles and entrepreneurial skills to recognize changes and improve business performance (Office of Technology Assessment, 1990; SCANS, 1991; Timmons, 1994). This is in addition to the knowledge and skills demanded from workers in the high-performance workplace scenario such as teamwork, critical thinking, problem solving, and communication skills (Bailey, 1991). It appears these demands may have a greater impact on small enterprises all across the nation. Reports on the state of small businesses have indicated that approximately 98% of all enterprises in the United States are small companies. About half of all new businesses fail within two years of operation (U.S. Small Business Administration, 1991). Reasons for such failure include lack of planning skills, inadequate controls, poor management skills, inability to market products or services, and lack of skills to locate professional help when necessary (NBIA, 1991).

Collectively, reasons for business failures point to poor entrepreneurial skills of business owners who may think that technical knowledge, business skills, or having a business plan alone is the key to success, and that entrepreneurship cannot be learned (Sudikoff, 1994; Timmons, 1994). However, in today's economy, technical and business skills are not enough to operate a business. Entrepreneurial skills are also required to anticipate changes, identify opportunities, and create a high-performance working environment according to the realities demanded by global competition. The debate

continues as to whether entrepreneurship can be taught, but the benefits of exposing business owners to entrepreneurial environments and training (e.g., business incubators, college courses) have been demonstrated in different settings and through different approaches (Goodman, 1994; Smilor & Gill, 1986; Timmons, 1994).

Recognizing the need to invest in education and training systems in tune with current skills demanded in the workplace, recent education reforms seek to establish creative partnerships to improve the preparation of workers through a broader education and training system (Bailey, 1994; Stasz, 1995). Partnerships between industry and two-year colleges are nothing new. Connecting activities have been in place for a long time; however, an expanded role for community colleges beyond workers' training has been recently advocated in response to current needs and to prepare individuals for alternative career paths including business ownership (Kopececk, 1991). Further, the percentage of failures in the operation of new small businesses reinforces the need to develop educational efforts to foster entrepreneurship through postsecondary institutions since two-year colleges are closer to the business community. The long-standing alliance between businesses and two-year colleges provides an excellent medium to contribute to economic growth by addressing different ways to foster entrepreneurship, including business incubation (Carmichael, 1991).

Assuming a leadership role in community economic development requires proactive participation in strategic planning, and involvement in broad-based community partnerships. Because of the close ties with key community players, this appears to be a natural role for postsecondary institutions. However, active participation in community development has been largely underestimated due to political implications; short-term vision; inadequate leadership; and funding, management, and time considerations (Kopececk, 1991). When these obstacles are overcome, the benefits can provide a sustained framework for economic development. Indeed, some states have already demonstrated the benefits for the participation of community/technical colleges in providing technical assistance and technology transfer to small business. In 1991, for instance, 144 community colleges sponsored assistance centers to small businesses (Carmichael, 1991). However, with more than 1,300 community colleges in the U.S., significant room for improvement exists. This contribution can also be complemented through partnerships with local industry to provide internships, scholarships, specialized training, and programs focusing on entrepreneurial development (Weinberg & Burnier, 1991). To implement such

efforts, it is necessary to understand the factors that influence the development of entrepreneurial skills with focus on the role of postsecondary institutions.

Most studies available to date focus on business performance and the experiences of incubator managers to generalize on entrepreneurs at large, and only limited entrepreneur-level information is available on key issues related to business incubation. Surveys of businesses in incubation are conducted periodically to describe the state of the industry in business incubation from an organizational perspective rather than from the in-house client perspective (e.g., National Business Incubation Annual Reports). Further, there is little information describing the efforts of postsecondary institutions in fostering economic development and entrepreneurship by supporting business incubation. This is, perhaps, due to the fact that only a small number of two-year colleges participate in these efforts (Carmichael, 1991; NBIA, 1993). Thus, few studies describe the population served by postsecondary vocational institutions, and the characteristics of partnership arrangements with business incubators. Based on these premises, it was important to conduct this study to gather data and describe the experiences of entrepreneurs in business incubation to better understand the efforts of postsecondary vocational institutions in fostering entrepreneurship in the community.

Purpose

The purpose of this survey was to examine the collective experiences of entrepreneurs, business incubator managers, and postsecondary institutions involved in educational and training strategies aimed at fostering entrepreneurship. The experience of entrepreneurs in business incubation—an environment where business owners are nurtured and provided with opportunities to develop entrepreneurial skills—was viewed as an appropriate medium to gather rich insights about entrepreneurship. The objectives were to

- develop a shared understanding of entrepreneurship development in business incubation.
- identify opportunities for two-year colleges to develop entrepreneurship as an alternative career path for individuals with diverse backgrounds.

The definition of entrepreneurship used herein is characterized as the ability to "gather resources for creative and innovative purposes to meet needs or solve problems" (Goodman, 1994, p. 36) in business development using knowledge of business techniques in conjunction with the application of a personal value system. That is, entrepreneurship involves knowledge about products, markets, and competitors embedded within a value system of persistence and motivation which together shape that intangible referred to as entrepreneurship.

Method

The business incubation concept is defined here as a strategy to foster community economic development. This concept can focus on facilities which provide favorable conditions to nurture the development and growth of new small firms, that is, commercial space at low cost, including clerical and administrative support, basic office equipment, and counseling services to assist the development and survival of new companies in business incubation. It can also focus on holistic environments involving, in some instances, whole communities where business owners work closely with local leaders to learn and develop entrepreneurial skills (NBIA, 1991; National Council for Urban Economic Development, 1985; Smilor & Gill, 1986). Through business incubation, community development agencies, universities, two-year colleges, and a combination of sponsors seek to promote entrepreneurial talent and jobs, revitalize local economies, and assist in the development of technology.

The survey was conducted in collaboration with the National Business Incubation Association (NBIA), and a sampling strategy was designed to draw participation from the NBIA membership. Two surveys—one for business incubator managers and another for incubator clients—were developed within the total design of the study. As a complementary strategy to offset possible low return rates from the target population consistently reported in related literature (e.g., NBIA, 1991; Smilor & Gill, 1986), case studies were conducted in nine sites representing urban, rural, and suburban communities, as well as different primary sponsorship, business incubation approach, and target clientele (for a review of case studies see Report 2 by Hernández-Gantes, Sorensen, & Nieri, 1996a).

Sampling

A two-step sampling procedure was conducted to gather data on managers and clients from business incubators sponsored primarily by two-year colleges, in comparison to those sponsored by universities and those sponsored by a variety of other organizations in the community (e.g., economic development agencies, local and state governmental agencies, and a combination of agencies).

The first step involved the selection of business incubators. NBIA members were the sample frame considered for the survey. The overall membership of NBIA reported in 1993 was 499 incubators located in the United States, Canada, and Puerto Rico (NBIA, 1993). A list of member incubators representing the categories of interest was provided by NBIA staff. Of these, only 25 incubators were found to be associated primarily with two-year colleges. Thus, given our particular interest in this category, and the small number of business incubators identified, we decided to include all of them, along with a proportional sample of incubators sponsored by universities and other sources. Hence, the overall sample included 200 incubators, representing 40% of the total NBIA membership. We felt that the inclusion of all incubators supported by two-year colleges, and a proportional number of the two other types of incubators, would provide a more comprehensive representation of the NBIA membership.

Based on this approach, a stratified random-sampling process was conducted to include 75 university-sponsored incubators, and 100 other source-sponsored incubators (e.g., community development agencies, private organizations), in addition to the 25 incubators sponsored by two-year colleges. Incubator managers were requested to complete their surveys and to facilitate the survey of in-house incubator clients. The second step involved a selection procedure of incubator clients. According to the last report of the state of business incubation (NBIA, 1991), the average number of clients per incubator was 12, with the possibility that none be in incubation (e.g., the incubator may serve external clients only). Thus, based on feedback from NBIA executive staff and the review of the 1993 report on business incubation, we decided on a "convenient" sampling process of business incubator clients. Initially, we decided to target at least two clients per incubator for an overall target sample of 400 clients. However, we anticipated that, in some instances, none would be in incubation, and that others would not respond for a variety of reasons. Hence, to improve an expected low response rate (based on previous

NBIA experience), it was decided to oversample and send survey materials to at least five clients per incubator for an overall adjusted sample of 1,000 clients.

Survey Instruments

Given the nature of the target population (individuals with busy schedules and high mobility), we decided to develop self-administered questionnaires including closed questions. Self-administered procedures are advantageous to other methods when probing is not possible and when response categories are numerous (Fowler, 1993). Survey instruments were developed for managers and clients with a focus on the following areas: (1) incubator services, (2) aspects of entrepreneurship and business development, and (3) a demographic profile of entrepreneurs and business incubator managers (see Appendices A and B). Both surveys contained basically the same questions to get perspectives on the same issues based on the managers' and clients' point of view. Questionnaires were pilot tested at one incubator, including input from five staff members and seven clients, and further revised by our National Advisory Group. Based on this review process, questions were modified in terms of wording, deleted or added, and framed in different response scales (e.g., Likert scale, multiple choice).

Data Collection and Follow-Up Activities

Questionnaires were mailed to incubator managers with a cover letter explaining the purpose and requesting their collaboration to distribute surveys to five in-house incubator clients. Anticipating a low return rate, follow-up mailings were scheduled three, six, and nine weeks after the original mailing. The first follow-up was conducted sending nonrespondents a new copy of the survey and a follow-up letter asking them to consider participation in the survey. The second and third follow-ups involved a reminder card, and telephone calls to nonrespondents, respectively, encouraging them to participate in the survey.

Managers contacted over the phone indicated they were oversurveyed and had many other demands on their time. All in all, questionnaires were returned from 40% of incubator managers, and by 45% of the initial target sample of 400 incubator clients. This is considering questionnaires which could not be delivered because some incubators were no longer in operation or had no in-house clients. The average number of clients responding per incubator was 2.16.

Analysis

To account for the anticipated low response rate, a concurrent study was conducted to review nine sites to develop in-depth case studies. This approach allowed us to verify survey information and provided rich descriptions of business incubator managers' and in-house clients' experiences related to the purpose of this study (see the case studies in Report 2). Further, demographic profiles were compared with similar surveys conducted with the same target population (e.g., Campbell, 1987; NBIA, 1991). These strategies and comparisons provided an indication of both the representativeness of the sample and the consistency of the survey results.

Returned surveys were coded, and data was entered in databases created to store information on managers and clients. The analysis was conducted using basic descriptive statistics (e.g., frequencies, averages) to represent the response patterns of managers and clients for each question or sets of questions. Univariate and multivariate tables were created to analyze the information and describe the survey sample either by individual or multiple questions, or for subgroup descriptions.

Results

The results are presented in two sections describing findings from the surveys of business incubator clients and managers. Each section includes a subsection describing the corresponding sample of business incubator clients and managers, and additional subsections to describe the perspectives of both incubator clients and managers on various aspects of business incubation and entrepreneurship. Table figures are based on responses from 28, 71, and 61 in-house clients from incubators sponsored by two-year colleges, universities, and other community organizations, respectively. The overall number of respondents for the incubator client cohort was 160. Similarly, table figures derived from the survey of incubator managers represent responses from 12, 36, and 26 managers associated with two-year college, universities, and other incubators, in that order.

Survey of Business Incubator Clients

The profile of survey respondents conform to the profile of business incubator tenants at large characterized by a majority of male, middle-age Caucasian business owners (see NBIA, 1991). Overall, ethnic representation was characterized by 88.2% Caucasian,

followed by small proportions of other African-American (5.8%), Asian (3.2%), and Hispanic (2.3%) entrepreneurs. Native Americans were represented by only .6% of all respondents. In terms of gender, 77.1% of respondents were male and 22.9% female. The majority of the respondents—roughly 60%—were middle-age (between 36 and 50 years old), while the rest were either younger (20% between 26 and 35 years old), or older (20%, 51+ years old).

The educational level of respondents was primarily described by a four-year college education (45%), followed by master's degrees (25%), and Ph.D.s (11.9%). Only a minority of entrepreneurs (8.1%) indicated their highest educational level was represented by a two-year college degree. Across business incubators, university-sponsored business incubators seemed to attract entrepreneurs who are more educated in comparison to the other two types of incubators. That is, 90.2% of the entrepreneurs in university-sponsored incubators reported a four-year college education or higher, while only 64.4% and 80.3% of entrepreneur incubators sponsored by two-year colleges and other organizations, respectively, reported the same educational background.

Perspectives on Incubator Services

In regard to services that business incubators are providing most effectively, the majority of respondents indicated it is business space and infrastructure (53.1%, overall response). Clerical and office services followed with 16.7%, while all other services were clearly considered to even a lesser extent. Together, business space and clerical support accounted for 69.8% of the responses, and almost identical combined responses were found across incubators. Table 1 reports the entrepreneurs' perspectives on services provided by business incubators.

In regard to incubator features, about a third of the respondents across all three types of business incubators indicated that low rental fees is what they like the most (30.1%). This was followed by low fees for services (15.9%) and building maintenance (14.9%). No major variations from this pattern were apparent across types of incubators (see Table 1).

Table 1

Entrepreneurs' Perspectives on Incubator Services by Type of Incubator

About Incubator Services	Two-Year College	University	Other Sources	Overall
Services the incubator is providing most effectively		%		
• Financing assistance	7.50	6.30	8.20	7.20
• Clerical/Office services	17.50	16.70	16.40	16.70
• Management assistance	10.00	4.20	5.50	5.70
• Technical assistance	5.00	3.10	0.00	2.40
• Education/Training	7.50	8.30	6.80	7.70
• Business space and infrastructure	47.50	53.10	56.20	53.10
• Entrepreneurial development	5.00	8.30	6.80	7.20
Feature of incubator clients like the most				
• Low rental rate	29.20	31.70	28.80	30.10
• Low fees for services	15.80	17.90	11.90	15.90
• Building maintenance	15.80	13.80	15.30	14.90
• Financing assistance	6.70	1.60	5.10	4.30
• Support to reduce "business stress"	10.80	11.40	10.20	10.90
• Networking opportunities	11.70	8.90	8.50	9.90
• Promotion of entrepreneurship	2.50	6.50	10.20	5.60

Perspectives on Education and Training

"Education and training" refers to established business incubator programs, including sequences of courses, seminars, workshops, demonstrations, and short-term activities which help prepare entrepreneurs in specific areas. The entrepreneurs' perspectives on education and training services were characterized by a considerable proportion of respondents who indicated no need for these services (about 30% across incubators) (see Table 2).

About 40% of the respondents reported that most services on education and training are provided by a combination of sources (e.g., consultants, volunteers, incubator staff), while around 20% said incubator staff is the main provider of these services. Educational institutions were consistently mentioned across types of incubators as less involved in the provision of education and training services in business incubation.

Overall, individual on-site training consultation (30.1%) was the education and training services format most frequently used, followed by seminars offered periodically (27.5%). Other popular choices were workshops developed upon request from clients (17.2%) and series of education and training modules offered on a regular basis (16.2%). Together, these options are traditional formats for delivery of education and training

services and indicate the predominant use of individual on-site consultation, and a slight preference for seminars over other formats of delivery (Table 2).

Table 2
Entrepreneurs' Perspectives on Education and Training Services by Type of Incubator

About Incubator Services	Two-Year College	University	Other Sources	Overall
Delivery of education and training services			%	
• Have no need for these services	25.00	33.30	28.30	30.00
• Provided by incubator staff	25.00	17.50	20.80	20.10
• Most services are provided by a combination of sources	35.70	42.90	37.70	39.60
• Most services are provided by educational institutions	14.30	6.30	13.20	10.40
Format of education and training services				
• Individual on-site training/consultation	31.40	28.60	33.00	30.10
• Workshops developed upon request from clients	19.60	17.10	16.00	17.20
• Series of education/training modules offered periodically	21.60	17.90	11.00	16.20
• Videos for self-paced training and instruction	5.90	10.70	7.00	8.60
• Seminars offered periodically	21.60	25.70	33.00	27.50

Entrepreneurial Experiences

Overall, entrepreneurs in business incubation who responded to the survey reported gaining previous exposure and experience related to their current line of business via school laboratory work (23%) and internships in similar businesses (23%). These sources of previous experience were followed by part-time jobs in related industry (17.3%) and mentor programs (14.1%). This pattern is consistent across all types of business incubators (see Table 3). From a cross-examination of Table 3, it is clear that the majority of entrepreneurs who responded to the survey gained their current experience on business skills necessary to run a small business through previous work for a company in a related business field (40%, overall response). The second most important source was undergraduate and graduate programs (18.3%). In regard to technical experience, about 40% of the respondents reported learning their technical expertise through previous jobs in the industry (38.7%) and through undergraduate and graduate work (33.8%). Technical expertise acquired through two-year technical college programs accounted for only 6.8% of the responses.

Responses by type of incubator showed that the major source of technical expertise—previous work in the corporate world—is distributed evenly across business incubators. However, the other most important source—undergraduate/graduate work—remained at the overall level in university-sponsored incubators but dropped by about ten percentage points at the other two types of incubators. Further, two-year college coursework as a source of technical expertise drops by about eight percentage points in a university-sponsored incubator in relation to the other two types of business incubators. From these responses, it appears that university-sponsored incubators are primarily tending to well-educated entrepreneurs who had been previously working for private corporations, while slightly more diverse groups operate in the other two types of incubators.

Table 3
Sources of Experience for Entrepreneurs Operating in Different Type of Incubators

Sources of Experience	Two-Year College	University	Other Sources	Overall
Experience as a student or supervisor in . . .			%	
• Tech Prep	3.20	2.50	4.10	3.20
• Mentor programs	16.10	12.30	15.10	14.10
• School laboratory work	16.10	24.70	23.30	23.00
• Apprenticeship programs	6.50	7.40	8.20	7.60
• Internships in the workplace	22.60	24.70	23.30	23.00
• Part-time jobs in related businesses	29.00	17.30	12.30	17.30
• Other	6.50	11.10	12.30	11.00
Business skills where learned from . . .				
• A close relative who owned a business	6.50	6.00	7.00	6.50
• Small Business Administration	2.20	9.50	10.00	8.40
• Outreach efforts of incubator	6.50	2.60	3.00	3.40
• Working for a company	37.00	40.50	41.00	40.00
• Working for a family business	8.70	0.90	8.00	4.90
• Vocational high school classes	0.00	0.90	1.00	0.80
• Courses at community/technical college	4.30	2.60	3.00	3.00
• Undergraduate/graduate coursework	17.40	22.40	14.00	18.30
• Other	17.40	14.70	14.00	14.80
Technical skills were learned from . . .				
• A close relative who owned a business	2.30	2.50	2.30	2.40
• Working for a company	38.60	38.70	38.60	38.70
• Working for a family business	6.80	0.80	6.80	3.40
• Vocational high school classes	0.00	0.80	0.00	0.50
• Courses at community/technical college	11.40	3.40	11.40	6.80
• Undergraduate/graduate coursework	27.30	38.70	27.30	33.80
• Other	13.60	15.10	13.60	14.50

Entrepreneurial Perspectives

The perspectives of entrepreneurs on skills needed to operate a business and areas where they feel further education and training were required are presented in Table 4. Overall patterns of response are similar for most important skills and areas in need of further education and training, and only slight differences were found across types of incubators.

Responses were almost evenly distributed at about 15% for business, technical, entrepreneurial, interpersonal, and motivational skills. This overall pattern changed slightly for entrepreneurs in incubators primarily supported by two-year technical colleges who reported a more balanced profile of importance for skills needed to operate a business in comparison to the other two types of incubators.

Table 4
Entrepreneurs' Perspectives on Skills and Training Needed To Operate a Business by Type of Incubator

Perspectives on Skills and Training	Two-Year College	University	Other Sources	Overall
Most important skills needed to operate a business . . .		%		
• Business skills	14.60	12.20	16.80	14.40
• Technical skills	14.60	14.00	15.80	14.80
• Entrepreneurial	11.20	15.80	13.00	14.00
• Interpersonal and communication skills	13.50	13.10	14.10	13.60
• Thinking skills	10.10	10.90	9.80	10.30
• Basic literacy skills	12.40	9.00	8.70	9.50
• Technological skills	9.00	9.00	5.40	7.70
• Motivational skills	14.60	15.80	16.30	15.80
Areas where further education and training is needed . . .				
• Business skills	40.90	19.00	36.40	28.70
• Technical skills	9.10	15.20	9.10	12.00
• Entrepreneurial	13.60	21.50	15.20	18.00
• Interpersonal and communication skills	4.50	7.60	7.60	7.20
• Thinking skills	0.00	3.80	6.10	4.20
• Basic literacy skills	0.00	3.80	4.50	3.60
• Technological skills	27.30	17.70	13.60	17.40
• Motivational skills	4.50	11.40	7.60	9.00

A somewhat similar overall trend was found regarding further education and training needed to run a business successfully. In this regard, business skills were mentioned by a greater proportion of respondents (28.7%), followed by entrepreneurial

(18%), technological (17.4%), and technical skills (12%). Across all business incubators, the need for education and training drops about 20 percentage points in university-sponsored incubators in comparison to the other two types of incubators. Further, respondents from incubators primarily sponsored by two-year colleges and "other" sponsors appear to be more concerned with business skills (40.9 and 36.4%, respectively), while those in university-sponsored incubators show a more balanced profile of responses indicating interest in education and training opportunities in business (19%), entrepreneurial (21.5%), and technological skills (17.7%).

Another aspect of the entrepreneurial perspectives involved an evaluation of experiences on business development including start up opportunities and limitations, knowledge of products and/or services, clientele, and information about marketing strategies (see Table 5). At the early stage of business development when entrepreneurs joined the business incubator, they all agreed—regardless of business incubator type—that they were well-prepared to start up their business operations and did not need any assistance in developing their business plan. About knowledge of their business product and/or services, respondents reported that when they started their business, they knew how to produce or deliver business goods or services and did not require technical assistance for that purpose. Across business incubators, this pattern remained the same.

Similarly, about knowledge of target clientele, clients reported that they knew the scope and needs of their potential clientele and did not require assistance for that purpose. In regard to marketing, respondents indicated they had a marketing plan to sell products or services, knew how to implement their plan, but needed some assistance in developing their plan. All respondents agreed that having a marketing plan was a priority for them at the early stage of business development. This pattern was relatively consistent across business incubators (see Table 5).

After the initial start-up stage, the concerns switch to management, personnel, finances, and growth plans to keep the business running smoothly. About overall management of their businesses, clients across all business incubators agreed they have their business organized in a functional manner, keep good records of business operations, handle management on their own effectively, and do not require assistance in this area (Table 6). Respondents across all business incubators agreed that they follow sound personnel management practices. The only discrepancy was found in firing procedures where entrepreneurs in university-sponsored incubators reported not following regular

procedures. Given the nature of the response format, an explanation for this statement is not possible. In terms of business finances, entrepreneurs in two-year college-sponsored business incubators reported that they have not received assistance on business finances and do not need this kind of assistance. In contrast, clients in incubators sponsored by universities indicated they have received and need assistance on business finances, while clients in incubators sponsored by other organizations noted they had received help but did not need assistance (see Table 6).

Table 5

Entrepreneurs' Perspectives on Business Development by Type of Business Incubator*

Perspectives on Business Development	Two-Year Colleges	University	Other Sources	Overall
When entrepreneurs enrolled in the incubator . . .			%	
• Had a well-defined concept of their business product/service	4	3	3	3 (.73)
• Did not have a written plan	2	2	2	2 (1.2)
• Needed substantial assistance developing a business plan	2	2	2	2 (.93)
• Were open to modification of original business idea	3	3	3	3 (.78)
About limitations to start-up, entrepreneurs . . .				
• Did not know how to go about starting up	2	1	2	2 (.82)
• Did not have adequate financing	3	1	3	2 (.96)
• Did not know where to find assistance	2	1	2	2 (.78)
About business product/service, when entrepreneurs started their business . . .				
• Knew how to produce/deliver business goods or services	4	3	4	4 (.68)
• Had a good business idea but relied on someone else to produce or deliver goods or services	2	2	2	2 (.84)
• Had identified steps and operations required to produce/ deliver goods or services	3	3	3	3 (.68)
• Did not need technical assistance to produce or deliver goods/services	3	3	3	3 (.93)
About knowledge of target clientele, entrepreneurs . . .				
• Knew the scope of their target clientele	3	3	3	3 (.78)
• Knew the needs of their target clientele	3	3	3	3 (.72)
• Required assistance to identify clientele	2	2	2	2 (.89)
• Did not know where to get information about target clientele	2	2	2	2 (.81)
About marketing of product/services, entrepreneurs . . .				
• Had a marketing plan to sell products/services	3	3	3	3 (.87)
• Knew how to implement marketing plan	3	3	3	3 (.85)
• Needed assistance to develop a marketing plan	3	3	2	3 (.88)
• Did not consider a marketing plan a priority	2	2	2	2 (.88)

*1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Totally Agree

Numbers in parentheses indicate the standard deviation.

Overall, respondents also indicated they were prepared for business expansion and growth, although clients in "university-sponsored" and "other" incubators observed that they did not need help in developing those plans. On the other hand, clients in incubators sponsored by two-year colleges feel they did need assistance in this area (Table 6).

Table 6
Entrepreneurs' Perspectives on Business Operations by Type of Business Incubator*

Perspectives on Business Operations	Two-Year Colleges	University	Other Sources	Overall
About management operations, entrepreneurs . . .				
• Have business well-organized	4	3	3	3 (.55)
• Do not keep good records of operations	2	2	2	2 (.79)
• Handle business management effectively	3	3	3	3 (.60)
• Do not require assistance on business management	3	3	3	3 (.76)
About personnel management, entrepreneurs . . .				
• Use a screening process for hiring	3	3	3	3 (.70)
• Resolve conflicts with employees	3	3	3	3 (.51)
• Follow legal firing procedures	4	1	3	3 (.64)
• Evaluate job performance and provide feedback to employees	4	3	3	3 (.54)
• Are able to motivate employees	4	3	3	3 (.56)
About business finances, entrepreneurs . . .				
• Are always able to pay bills	3	3	3	3 (.84)
• Are able to keep competitive costs	3	3	3	3 (.54)
• Offer competitive prices	4	4	4	4 (.53)
• Handle money operations effectively	3	3	3	3 (.62)
• Have received assistance on business finances	2	3	3	3 (.92)
• Need assistance handling business finances	2	3	2	2 (.92)
About plans for expansion and growth, entrepreneurs . . .				
• Have written plans	3	3	3	3 (.87)
• Have taken steps to implement plans	3	3	3	3 (.70)
• Need assistance to develop plans	3	2	2	2 (.74)

*1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Totally Agree

Numbers in parentheses indicate the standard deviation.

Personal entrepreneurial characteristics such as communication, interpersonal, computer, problem-solving skills, and perceived need for further education and training are reported on Table 7. About communication and interpersonal skills, respondents agreed across all incubators that they can communicate effectively with people, did not have

problems negotiating and resolving conflicts, did not require assistance to improve skills to communicate in writing, and did not have problems interacting effectively with customers and employees.

Table 7
Entrepreneurs' Perspectives on Personal Skills by Type of Business Incubator*

Perspectives on Personal Skills	Two-Year Colleges	University	Other Sources	Overall
About communication and interpersonal skills, entrepreneurs . . .				
• Communicate effectively with people	3	3	3	3 (.51)
• Have problems resolving conflicts	2	2	2	2 (.66)
• Need to improve skills to communicate in writing	3	2	2	2 (.86)
• Have problems interacting effectively with customers and employees	2	2	2	2 (.55)
About computer skills, entrepreneurs . . .				
• Are familiar with basic use of computers	3	3	3	3 (.77)
• Work comfortably with cutting-edge computer technology	3	2	3	3 (1.0)
• Need computer education/training	3	2	2	2 (1.0)
About problem solving, entrepreneurs . . .				
• Recognize when something is not working right	4	3	3	3 (.55)
• Are able to identify possible causes of problems on their own	3	3	3	3 (.49)
• Whenever there is a problem, can devise a plan of action to resolve it	3	3	3	3 (.66)
• Evaluate and monitor progress of solutions to problems	3	3	3	3 (.58)
About education and training opportunities, entrepreneurs . . .				
• Feel they need further education/training opportunities to develop business, technical, and entrepreneurial skills	3	3	3	3 (.79)
• Are willing to pay for education/training opportunities	3	3	3	3 (.76)
• Are aware of educational opportunities in their community	3	3	3	3 (.71)

*1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Totally Agree

Numbers in parentheses indicate the standard deviation.

Further, survey respondents indicated they are familiar with basic use of computers but disagreed on having knowledge of cutting-edge technology and on need for computer

education and training. Entrepreneurs in business incubators sponsored by universities reported they were not comfortable working with cutting-edge computer technology, while respondents from the other two types of business incubators did. Also, in-house clients in incubators sponsored by two-year colleges felt they need additional computer training, while those in incubators sponsored by universities and other sponsors believed they did not need training in this area. About problem solving, respondents across all types of business incubators felt confident about their abilities to solve problems. Finally, entrepreneurs believed that—in general—they need further education and training opportunities to develop business, technical, and entrepreneurial skills. Concurrently, they agreed on willingness to pay for these opportunities and are aware of educational opportunities available in their community (Table 7).

Survey of Business Incubator Managers

Sponsorship of business incubators was characterized by a combination of partners, but primary sponsorship was determined by the size of individual contributions. Table 8 presents the percentage contribution of various sponsors by type of business incubator. As expected—each type of incubator was primarily supported by the organization used for identification purposes during the selection process.

The kind of contribution provided by primary sponsors was characterized by making available business and technical expertise to entrepreneurs in incubation (25.1%), building infrastructure (21.2%); consulting staff to deliver education, training, and business services (18.5%), and financial support (17.2%). The rest of the contribution was accounted for by administrative and management staff and other forms of support.

Overall, the ethnic profile of incubator managers was characterized as mostly Caucasian across all types of incubators (91%), a small proportion of African-Americans (8.1%), a small representation of Native Americans (.9%), and no participation of individuals with Asian or Hispanic backgrounds. Across business incubators, Caucasian managers accounted for 100% of representation at two-year college-sponsored incubators, while a profile including 8.3% African-American, 2.8% Asian, and 88.9% Caucasian was found in university-sponsored incubators. Incubators sponsored by other organizations in the community were managed by 16% African-American managers, while the rest were of Caucasian descent (84%). The average age of business incubator managers was 46 years old and this was almost identical across incubator types. Gender representation was

characterized by about 70% male and 30% female. Only in incubators sponsored by universities was the proportion of female respondents ten percentage points higher than the overall trend. Further, the general educational profile of business incubator managers was heavily represented by bachelor's (46.9%) and master's degree levels (33.4%). Two-year college-sponsored incubators had a more balanced profile of management but showed a greater proportion of managers with bachelor's degrees (38.5%).

In general, business incubator managers have been in their current position an average of four years with little variation across incubator types (range = 3.6 to 4.9 years). In regard to previous work experience, the overall background is diverse with only business management and academic staff positions being reported by slightly more than 10% of the respondents. Further, in two-year college-sponsored incubators, managers frequently reported more previous experience in property management (18.7%), business management (14.13%), sales/marketing (14.13%), and financial services (11.96%). In university-sponsored incubators, previous experience was characterized mostly by positions in business management (11.9%) and academic settings (11.9%). Similarly, the positions most frequently mentioned by managers in incubators sponsored by other organizations were business management (11.5%), financial services (10.6%), and previous business start-up ventures (10.6%) (see Table 8).

Table 8

Previous Work Experience of Incubator Managers by Type of Incubator

Previous Experience	Two-Year Colleges	University	Other Sources	Overall
	%			
Business owner	7.61	7.34	9.73	7.80
Business management	14.13	11.93	11.50	11.30
Property management	18.70	7.34	7.96	7.80
Economic development	6.52	9.17	6.19	7.00
Nonprofit organizations	7.61	9.17	7.96	7.80
Incubator management	0.00	2.75	2.66	7.80
Business consulting	6.52	7.34	5.31	0.90
Financial services	11.96	9.17	4.43	6.10
Sales/Marketing	14.13	8.26	10.62	7.00
Government	6.52	8.26	5.31	9.60
Business start-up experience	6.52	7.34	10.62	8.70
Lawyer	0.00	0.00	7.96	7.80
Academic experience	9.78	11.93	9.73	10.40

Business Incubator Services

The perspectives of incubator managers on business incubation and services they have provided are presented in Table 9. Overall, managers indicated that if they had the opportunity to choose where to focus their work, they would rather spend their time in direct consultation with clients (24.3%). This was followed by creating and maintaining external resources and networks to support business incubation (22%), marketing the incubator (17.4%), establishing education and training programs (12.4%), and performing management duties (11%). Managers of incubators sponsored primarily by two-year colleges agreed with spending more time in direct consultation with clients (29.3%) but also emphasized the desire to work more on establishing education and training programs (25.8%). Managers from the other two types of incubators share a similar pattern outlined for managers as a whole (see Table 9).

Three areas of business incubation appeared to be emphasized the most across all business incubators. These are business services (26.4%), opportunities to experience an entrepreneurial environment (24.7%), and low rent for commercial space (22.5%). Concurrently, respondent managers believed the services they are providing most effectively are business space and infrastructure (22.8%) and clerical and office support (17.8%). This pattern was apparent across all business incubators. In general, there only appeared to be slightly more emphasis on education and training services by managers in two-year college-sponsored incubators across the various aspects of incubation (Table 9).

As a whole and across types of business incubators, managers agreed their services were clearly defined and presented to clients in promotional materials. In addition, managers totally agreed about making clients aware of frequency, duration, and cost of services; offering service options according to individual needs; and providing educational and training opportunities for individuals thinking of starting up a business.

Table 9

Managers' Perspectives on Emphasis and Services of Business Incubators

Managers' Perspectives	Two-Year Colleges	University	Other Sources	Overall
If incubator managers had the chance, they would focus their work in . . .				
• Direct consulting with clients	29.03	24.32	22.37	24.30
• Creating/maintaining external resources and networks	12.90	23.42	23.68	22.00
• Fundraising	6.45	7.21	6.58	6.90
• Building maintenance	0.00	6.31	3.95	4.60
• Marketing the incubator	16.13	15.32	21.05	17.40
• Incubator management	9.68	10.82	11.84	11.00
• Establishing education/training programs	25.81	10.82	9.21	12.40
• Non-incubator job responsibilities	0.00	1.80	1.32	1.40
Areas most emphasized when promoting the incubator to clients . . .				
• Low rent, good facilities	22.86	21.05	24.36	22.50
• Financial opportunities	2.86	7.89	11.54	8.40
• Business services	28.57	28.07	23.08	26.40
• Education/training services	17.14	13.16	10.26	12.80
• Entrepreneurial environment	28.57	24.56	23.08	24.70
• Other	0.00	5.26	7.69	5.30
Services the incubator is providing most effectively . . .				
• Financing assistance	6.06	4.84	13.10	7.90
• Clerical/Office services	21.22	19.35	14.29	17.80
• Management assistance	15.15	12.90	13.10	13.30
• Technical assistance	3.03	4.84	7.14	5.40
• Education/Training	18.18	13.71	10.71	13.30
• Business space and infrastructure	21.22	22.58	23.81	22.80
• Entrepreneurial development	12.12	15.33	15.48	14.90
• Other	3.03	6.45	2.38	4.60

Managers' Perspectives on Education and Training

Two strategies to provide for education and training services were more prominent across all business incubators. These strategies come in the form of seminars offered on a regular basis (34.8%) and individual on-site training/consultation (31.9%). Incubator managers reported that education and training services in business incubators were mostly provided or facilitated by staff from educational institutions (35.3%) and incubator staff (23.5%). Overall, about 20% of the managers reported that providers represented a combination of sources, while professional services offered by community businesses were moderately represented with 14.7%. Of educational institutions providing education and training services, four-year colleges represented the bulk of participation with 41.7%, followed by business schools with 16.7%.

Further, across business incubators, two-year college-sponsored incubators did not use educational services from four-year colleges. Managers reported using services from business schools (28.57%) and two-year college staff (14.29%), and relied heavily on a variety of other unidentified sources (57.14%). Surveyed managers also indicated educational and training services were best provided by educational institutions (30.6%) and incubator staff (25.4%). Across business incubators, managers conformed to this pattern of perspectives, clearly indicating the important role of educational institutions in business incubation (Table 10).

Finally, the perspectives of surveyed managers on the preparation entrepreneurs need to operate a business indicated two areas of attention. One of these two areas—business skills—was more heavily considered, as it was mentioned by about 60% of managers. The second area was entrepreneurial skills (e.g., ability to organize and use resources and information available for business purposes) with 20.8%. This pattern was consistent across incubator types (Table 11).

According to respondent managers—across all business incubators—the most frequent reason for business failures was the lack of business skills (35.49%). The second most mentioned reason was the lack of "entrepreneurial skills" (18.73%). That is, the capacity to recognize and take advantage of business opportunities based on available resources and information. This was followed by communication and interpersonal skills needed to deal effectively with customers, providers, creditors, and personnel (15.14%).

Table 10

Education and Training Services Offered by the Incubator

Perspective on Education and Training Services	Two-Year Colleges	University	Other Sources	Overall
		%		
About format of education and training services . . .				
• Individual on-site training-consultation	33.33	24.14	40.00	31.90
• Workshops developed upon request	26.67	20.69	4.00	15.90
• Series of education/training modules	13.33	10.34	20.00	14.50
• Self-paced instructional materials	0.00	6.90	0.00	2.90
• Seminars offered periodically	26.62	37.93	36.00	34.80
About the provider of education and training services . . .				
• Business in the community	15.38	7.41	21.43	14.70
• Incubator staff	23.08	18.52	28.57	23.50
• Client firms in the incubator	7.69	7.41	7.14	7.40
• Educational institutions	30.77	40.24	32.14	35.30
• Combination of providers	23.08	25.93	10.72	19.10
About the contribution of educational institutions . . .				
• Vocational high school	0.00	0.00	0.00	4.20
• Vocational, trade, technical, or business school	28.57	8.33	25.00	16.70
• Public vocational-technical college	14.29	0.00	0.00	4.20
• Four-year college	0.00	75.00	25.00	41.70
• Other	57.14	16.67	50.00	33.30
According to managers, education/training services would be best provided by . . .				
• Private consulting firms	0.00	14.86	18.52	14.60
• Nonprofit volunteer organizations	0.00	10.81	11.11	9.70
• Educational institutions	37.50	33.78	24.07	30.60
• Tenant firms in education consulting	12.50	6.76	12.96	9.70
• Incubator staff	25.00	27.03	25.93	26.40
• Other	25.00	6.76	7.41	9.00

Perspectives on Incubator Clients

The perspectives of business incubator managers on entrepreneurs at earlier stages of business development, entrepreneurial opportunities and limitations, and various aspects of business operations are presented in Table 12. Overall, respondent managers agreed that entrepreneurs had a well-defined concept of their business idea when they joined business incubation. However, managers reported that entrepreneurs did not have written business plans and needed substantial assistance to develop them. Similarly, managers across all incubator types were consistent in reporting that new entrepreneurs were not well-prepared to start up a business and could not afford market rates for commercial space.

Table 11

Managers' Perspectives on the Preparation Entrepreneurs Need To Operate a Business by Type of Incubator

Perspectives on Preparation Needed by Entrepreneurs	Two-Year Colleges	University	Other Sources	Overall
Most important skills needed to operate a business . . .				
• Business skills	58.82	62.50	56.10	59.40
• Technical skills	11.76	2.07	9.76	6.60
• Entrepreneurial	11.76	25.00	19.51	20.80
• Interpersonal and communication	11.76	6.25	9.76	8.50
• Basic literacy skills	5.88	2.08	4.88	3.80
• Other	0.00	2.08	0.00	0.90
Most frequent reasons for business failures . . .				
• Lack of basic skills	8.33	7.79	6.78	7.63
• Lack of business skills	37.50	35.06	33.90	35.49
• Lack of communication and interpersonal skills	16.67	16.88	11.86	15.14
• Lack of technical skills	12.50	2.60	8.47	7.86
• Lack of entrepreneurial skills	12.50	23.38	20.31	18.73
• Other	12.50	14.29	18.64	15.04

In general, managers indicated that entrepreneurs had a good business idea but lack an understanding of all the implications for business start-up procedures. In terms of entrepreneurs' knowledge of their products/services, managers agreed that they knew how to produce/deliver their goods or services at the beginning of business operation. That is, entrepreneurs usually have a technical plan of operation laid out and do not require technical assistance for production or delivery of their goods/services. With the exception of two-year college-sponsored incubator managers, all others agreed that entrepreneurs knew the scope and needs of their clientele at earlier stages of business development but required assistance to identify their clientele. In terms of marketing of products and services at the beginning of business operation, business incubator managers agreed entrepreneurs did not have a clear marketing strategy. Managers also agreed entrepreneurs did not give a high priority to the marketing plan and, consequently, needed assistance to develop it once they realized the importance of having one (Table 12).

Once entrepreneurs pass the initial stages of business development, they confront another set of opportunities and limitations including business organization, personnel management, finances, and developing plans for expansion and growth. The perspectives of managers on these business aspects experienced by entrepreneurs are presented on Table

13. Across all types of incubators, managers thought entrepreneurs were well-organized and implemented sound management practices but required assistance on these aspects of business operations (Table 13).

Table 12
Managers' Perspectives on Business Development by Type of Business Incubator*

Aspect	Two-Year Colleges	University	Other Sources	Overall
When the entrepreneurs enrolled in the incubator . . .				
• Had a well-defined business idea	3	3	4	3 (1.0)
• Did not have a written plan	3	4	4	4 (.96)
• Needed help in developing business plan	4	4	4	4 (.98)
• Were open to modification of original idea	4	4	3	4 (.92)
About limitations to start up their business, entrepreneurs . . .				
• Did not know how to go about the start up	4	3	3	3 (1.1)
• Did not have adequate financing	4	4	4	4 (1.0)
• Did not know what they were getting into	4	3	4	4 (1.0)
• Did not know where to find assistance	4	3	3	3 (.98)
• Could not afford market rates for space	4	4	4	4 (1.0)
About business products/services, when entrepreneurs started their business . . .				
• Knew how to produce/deliver business goods or services	3	3	4	3 (.98)
• Had identified steps and operations required to produce/deliver goods or services	3	3	4	3 (.97)
• Did not need technical assistance to produce or deliver goods/services	2	2	2	2 (.93)
About knowledge of target clientele, entrepreneurs . . .				
• Knew the scope of their target clientele	2	3	3	3 (.99)
• Knew the needs of their target clientele	3	3	3	3 (.95)
• Required assistance to identify clientele	4	4	4	4 (.79)
About marketing of products/services, entrepreneurs . . .				
• Had a marketing plan to sell products/services	2	2	2	2 (1.0)
• Knew how to implement marketing plan	2	2	2	2 (.88)
• Needed help to develop a marketing plan	4	4	4	4 (.69)
• Did not consider a marketing plan a priority	3	3	3	3 (1.2)

*1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Totally Agree

Numbers in parentheses indicate the standard deviation.

Likewise, managers from all types of incubators agreed that entrepreneurs were able to manage personnel efficiently. Managers also agreed that entrepreneurs managed to pay rent and business bills on time, kept competitive costs and prices, but needed

assistance handling business finances. Further, respondent managers agreed that entrepreneurs in business incubation usually did not have written plans for expansion and growth, nor had they taken steps to implement their plans, and required help in developing their plans (see Table 13).

Table 13
Managers' Perspectives on Business Operations by Type of Business Incubator*

Aspect	Two-Year Colleges	University	Other Sources	Overall
About the management of their business, entrepreneurs . . .				
• Have a well-organized business	3	3	3	3 (.99)
• Keep good records of operations	3	3	3	3 (.98)
• Manage their business effectively	3	3	3	3 (.88)
• Do not require help on management	2	2	2	2 (.77)
• Are able to motivate employees	3	3	3	3 (.84)
About personnel management, entrepreneurs . . .				
• Use a screening process for hiring	3	3	3	3 (.90)
• Resolve conflicts with employees	3	3	3	3 (.85)
• Follow legal firing procedures	3	3	3	3 (.79)
• Hire only family members and relatives	2	2	2	2 (.77)
• Evaluate job performance	3	3	3	3 (.74)
About business finances, entrepreneurs . . .				
• Are always able to pay rent on time	4	4	4	4 (.95)
• Are able to keep competitive costs	3	3	3	3 (.89)
• Offer competitive prices	4	4	4	4 (.81)
• Need assistance on business finances	4	3	3	3 (.99)
About plans for expansion and growth, entrepreneurs . . .				
• Have written plans	2	2	2	2 (.97)
• Have taken steps to implement plans	3	3	3	3 (1.1)
• Do not need assistance to develop plans	2	2	2	2 (.79)

*1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Totally Agree

Numbers in parentheses indicate the standard deviation.

Finally, all managers—with the exception of those from university-sponsored incubators—believe that male minority-owned businesses were more likely to fail than the average firm in business incubation. Further, managers from two-year and minority-sponsored incubators disagreed in that female-owned firms are more likely to fail than the average company in business incubation. At the same time, all respondent managers

agreed that their management staff are well-prepared to service minority/female-owned firms.

Discussion of Results

The discussion of results focuses on two areas: understanding entrepreneurship and the entrepreneurial development through business incubation. Throughout the discussion, the role of two-year colleges is highlighted to build an outline for the implications on postsecondary education which will be further developed after the discussion of results.

Understanding Entrepreneurship in Business Incubation

To build an understanding of entrepreneurship, a profile of respondent entrepreneurs is presented and discussed in light of the results. This profile describes personal characteristics, experiences, and perspectives of entrepreneurs on opportunities and limitations to start up and operate a business.

Background Characteristics

The results of this survey provide additional evidence to support the predominance of male Caucasian entrepreneurs in business incubation over any other group. This pattern of participation is consistent across business incubators. In terms of educational background, it appears that incubators supported by two-year colleges and other organizations in the community serve a slightly more diverse group than university-sponsored incubators. Given the nature and influence of university settings, incubators supported by four-year institutions appear to attract more educated entrepreneurs in comparison to the other two types of incubators. Overall, entrepreneurs are more likely to hold either a bachelor's or a master's degree and are mostly middle-age. Across business incubators, minority groups and females are represented below their rates of participation in the population at large. This is an indication that two-year colleges supporting business incubation are not making any progress in targeting minorities or females to foster diversity in entrepreneurship in the community. The same can be said for the two other types of business incubators.

Entrepreneurs reported gaining previous experience related to the activities and operations of their current business primarily through hands-on work in school, internships in similar businesses, and part-time jobs in related industry and mentor programs. Business and technical experiences appear to be further refined through work in industry and the corporate world and through undergraduate and graduate studies for the majority of respondent entrepreneurs. In comparison, the contribution of two-year technical colleges is extremely low in preparing and supporting individuals entering the business world through the establishment of their own businesses.

Opportunities and Limitations for Business Start-Ups

During earlier stages of business development, it appears that new entrepreneurs have an unrealistic view of their abilities to implement their business idea. Respondent entrepreneurs, for instance, reported having everything under control with the exception of adequate financial support (see Table 6). In general, managers agreed that entrepreneurs come into the incubator with a well-defined idea of their business, but they do not usually have a written business plan and need help in developing a sound plan. Across incubators, managers agreed entrepreneurs face inadequate financing and lack an understanding of all the implications for business start-ups. Provision of clear and well-defined consulting services and the development of the business plan appear to be key to support entrepreneurs at early stages of their business operation. These results were verified by the personal insights of entrepreneurs and managers who were interviewed for case studies.

Surviving in the Business World

Entrepreneurs encounter a different set of problems once they get their business in operation after having developed and tested an idea. At this point, the technical knowledge and a good business idea are not enough to guarantee success. Other elements of business operations such as business organization, personnel management, finances, marketing, and developing plans for expansion begin to hit all at once. Again, respondent entrepreneurs across types of incubators feel they are well-prepared to handle all these operations but recognize the need for further education and training. Concurrently, managers agreed entrepreneurs require assistance on all these aspects of business operations. In particular, managers indicated that entrepreneurs usually do not have written plans for expansion and growth, nor are they working toward the implementation of those plans. Entrepreneurs interviewed for case studies explain that surviving in the business world can be

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overwhelming, and sometimes they reach a point where further expansion and growth is not worth the effort.

It is at this stage, however, where assistance is required to help entrepreneurs make the transition from incubation to the outside world, to expand the business operation, or to cluster with other businesses in incubation or in the community.

Perspectives on Entrepreneurship

One school of thought in the field of entrepreneurship is that the intrinsic nature of it cannot be taught. The suggestion is to not waste time on classes on entrepreneurship, to ignore the business plan and market and global strategies, and to focus on just one sale at a time (Sudikoff, 1994). Another school of thought defines entrepreneurship as both born and made. As such, people who are exposed to entrepreneurship and the tools of the business trade can reduce the risks of venturing in business and are more likely to succeed (Goodman, 1994; Timmons, 1994). That is, an entrepreneurial program may not be able to teach entrepreneurship per se, but it can teach specific techniques and strategies which can complement the intrinsic character of this personal phenomenon. In essence, this thesis is central to the concept of business incubation. Survey results and personal insights gathered through case studies confirmed the value of this approach.

Surveyed entrepreneurs and managers agreed on the intrinsic nature of entrepreneurship but also recognized the complementary importance of business and technical skills, ability to gather information and resources for entrepreneurial purposes, and the interpersonal and cultural dimension. Overall, the following characteristics are consistently identified across incubators:

- *Personal characteristics.* This is a consistent characteristic mentioned by survey respondents and by case study participants. In fact, 15.8% of respondent entrepreneurs (overall response) considered personal factors as the most important element to succeed in business (see Table 4)—more explicitly, the wish to be independent, take risks, and overcome obstacles found in their business career. The intrinsic ingredients of these personal characteristics also included a highly focused attitude of hard work, teamwork, and creativity to meet business goals.

- *Technical skills.* Surveyed entrepreneurs considered this an essential component of entrepreneurship as one has to be technically competent to understand how to produce or deliver goods and services (see Table 4). Entrepreneurs recognized that technical knowledge in their intended business field is necessary before attempting to become independent. Incubator managers did not rate this element as high, perhaps because this is one of the least important reasons for business failures and because the need for further education and training is not that high (see Table 11).

- *Business skills.* Across all business incubators, respondent managers were consistent in giving this element of entrepreneurship a balanced rating in comparison to other important factors (i.e., personal characteristics, and technical and interpersonal skills) (see Table 4). The majority of respondent managers across all incubators agreed that business skills are another critical element of entrepreneurship (Table 11). Evidently, the ability to successfully maintain daily operations—management, marketing, financial, decision making—is essential, and entrepreneurs confirmed that this is frequently the area where they need help. In fact, managers reported that the lack of business skills is one of the most important reasons for business failures.

- *Entrepreneurial vision.* This is another intrinsic characteristic which can be more closely associated with entrepreneurship per se. It involves a business vision to succeed, expand, and grow, but it also includes thinking skills, problem solving, and creativity which was mentioned as a separate category (see Table 4). Respondent managers rated "entrepreneurial vision" in second place after business skills and further stressed that this is another important reason for business failures (see Table 11). It is clear that the creative utilization of information, services, and resources available is perhaps central to the development and maintenance of an entrepreneurial vision. Although managers agreed that entrepreneurs come into incubation with adequate technical expertise, they also indicated that entrepreneurs lack the entrepreneurial vision to recognize the importance of a marketing plan and the advantages of consulting opportunities. Based on these contrasting perspectives, it is evident entrepreneurs may not have a realistic assessment of how all the aspects of an enterprise function together to provide a coherent vision for survival and expansion at earlier stages of business development. To provide for an understanding of all aspects of business operations, a number of services are available for entrepreneurs in business incubation, but information and services

may vary in quality and quantity. Nevertheless, one limitation for best utilization of these services is precisely the lack of entrepreneurial vision typical of the majority of business owners at the beginning of business development. For instance, it was mentioned that the main reason for joining an incubator is the low rent for working space, which represents a limited view of the advantages of being in business incubation. An entrepreneurial vision begins to develop when individuals recognize that the most important feature of an incubator is not low rent or working space, but the utilization of information, services, and other resources to support the development of their business.

- *Interpersonal skills.* The ability to communicate clearly and effectively with clients, suppliers, creditors, and personnel is another area mentioned consistently across business incubators by respondent entrepreneurs (Table 4). Managers rated this aspect as of moderate importance but recognized the lack of interpersonal and communication skills as a reason for business failures (Table 11). On the average, entrepreneurs agreed they can communicate effectively with others and have no problems negotiating agreements and resolving conflicts. Entrepreneurs also felt there is no need to improve their skills to communicate in writing and believed that they are able to interact effectively with customers and employees (see Tables 6 and 7). An indirect benefit of business incubation is the establishment of personal and professional relationships among incubator clients. The interactions provided through the process of incubation help reduce anxiety and the isolation of entrepreneurs by providing opportunities to exchange ideas and services.

About Being a Minority or Female Entrepreneur

The profile of entrepreneurs in business incubation further confirms the predominance of male Caucasian entrepreneurs over minorities and females. The same profile was found for incubator managers which dramatizes the under-representation of minorities and females in business incubation as a whole, even though these groups participate actively in the economy and the workforce. Surveyed managers from incubators sponsored by two-year colleges and other organizations in the community believed that male minority-owned firms are more likely to fail than the average firm in business incubation. Overall, all managers felt they are well-prepared to service minority/female-owned businesses, but they do not appear to actively target these groups according to survey and case study findings (Hernández-Gantes, Sorensen, & Nieri, 1996a).

Entrepreneurial Development Through Business Incubation

Business incubation is one of the most dynamic strategies. It facilitates entrepreneurship in the community, helps to create jobs, and stimulates economic growth and revitalization of depressed communities and neighborhoods (National Council for Urban Economic Development, 1985; Smilor & Gill, 1986). The focus of this section is on the role of business incubation in fostering entrepreneurship and perspectives of entrepreneurs and incubator managers on services provided by business incubators with particular emphasis on education and training.

Business Incubator Managers' Background

The profile of business incubator managers conforms to demographic information reported previously (e.g., NBIA, 1991). That is, managers are largely Caucasian, middle-age, male individuals who hold either a bachelor's or a master's degree. This demographic profile is consistent across business incubators and closely resembles the profile of entrepreneurs in business incubation in terms of under-representation of minorities and women. Managers have a diverse background of previous experience—mostly management and business related—and have been in their current position an average of four years. The demographic profile and job focus may have implications for the lack of emphasis in targeting and/or interesting more minorities and women in business opportunities through business incubation. It appears that managers are so busy maintaining the support of the incubator and so involved in building maintenance that they do not have time to focus their attention in promoting entrepreneurship in the community. Under these circumstances, managers have little time for individual consulting services.

The Role of Business Incubators

Overall, the contribution of primary incubator sponsors is characterized by providing commercial space at low cost, clerical support, and business expertise to entrepreneurs in incubation. Across incubators, only 17% of the budget is directly funded by primary sponsors, which forces managers to be involved in fundraising activities, to find ways to bring support and resources to the incubator, and to get personally involved in building maintenance as described in the literature (e.g., NBIA 1991). Indeed, managers reported that affordable commercial space and clerical support are the services they are providing most effectively to new entrepreneurs. The majority of surveyed entrepreneurs

clearly appreciated these services and indicated they were the primary motivation to move into the incubator.

Even though managers claim to be promoting entrepreneurship in business incubation through various services clearly explained to clients, entrepreneurs did not appear to be satisfied with the entrepreneurial aspect of their incubator, regardless of incubator type. Again, it appears that unless managers have the time to spend in direct consultation with clients, the role of incubators gets reduced to providing commercial space and clerical support at low cost.

Perspectives on Education and Training

Education and training activities are moderately emphasized across business incubators, two-year college-sponsored incubators included. In fact, only a fourth of respondent entrepreneurs felt that they have no need for education and training services. Entrepreneurs seemed to prefer direct individual consultation instead of formal and informal education and training services. Thus, although services such as seminars, workshops, and a series of training modules may be available at the incubator, attendance appears to be a problem. One strategy to overcome this problem is to build a coherent and meaningful education and training program into the business incubation enterprise. Further, incubator staff must stress the importance of being prepared in various entrepreneurial aspects and must use various techniques to reach and motivate entrepreneurs in and out of business incubation. Some guidelines to establish an effective education and training program are provided in a complementary guidebook (see Hernández-Gantes et al, 1996a).

Concurrently, the use of alternative materials and techniques (e.g., videotapes and interactive computer programs) may add flexible opportunities and self-paced instructional opportunities for entrepreneurs with time restrictions. Survey results suggested this is an area that has not received adequate consideration across all surveyed incubators as reported by both incubator managers and entrepreneurs in business incubation.

Further, the participation of educational institutions in education and training comes primarily from university faculty rather than two-year college personnel. Only in the case of two-year college-sponsored incubators is the contribution of university faculty absent, and in this circumstance the participation of two-year college faculty increases to a rather modest level (about 15% contribution). The problems associated with using two-year

college faculty may include scheduling problems and higher fees due to requirements to meet college regulations on salary (e.g., benefits, release time) (see Hernández-Gantes et al, 1996a).

Areas where further education and training are needed included business skills, use of information and resources ("entrepreneurial"), technical expertise, and use of technology, according to respondent entrepreneurs across the three types of business incubators. It is worth noting here that due to the slightly higher educational level of entrepreneurs in incubators sponsored by universities, the need for education and training drops about twenty percentage points in comparison to the other two types of incubators.

Conclusions

Survey results are consistent with previous research on business incubation (Campbell 1987; Lichtenstein, 1992; National Council for Urban Economic Development, 1985; Smilor & Gill, 1986). However, the results also highlight a limited contribution of two-year colleges in business incubation and suggest a number of implications for improvement of these connecting activities.

Although two-year college-sponsored incubators are supporting a slightly more diverse population of entrepreneurs in comparison to university-sponsored incubators, both management and in-house clients are predominantly represented by Caucasian males. Minorities and women continue to be disproportionately represented below their proportions in the general population as a whole, both as entrepreneurs and in incubator management positions.

The profile of entrepreneurs can be characterized by five major properties: (1) personal characteristics (intrinsic motivation, hard work values), (2) technical preparation, (3) business and management skills, (4) the capacity to utilize available resources and information to take advantage of business opportunities (entrepreneurial vision), and (5) interpersonal skills to communicate effectively with others and understand the social impact of business development.

Participating incubator sponsors—two-year colleges included—appear to be primarily providing clerical support and low-cost commercial space to entrepreneurs rather than consulting services and strategies aimed at fostering entrepreneurship. Limitations in management arrangements (e.g., managers' spending considerable time in fundraising activities and building maintenance) seem to preserve the lack of focus on the broader mission of business incubators—to provide an environment conducive for development of entrepreneurship through consulting services, education, and training activities.

Entrepreneurs and incubator managers recognize the need for education and training activities to help refine the original business ideas and complement the entrepreneurs' preparation as they start up and operate their businesses. However, entrepreneurs in incubation appear to be relying on direct individual consultation instead of taking advantage of education and training activities.

The contribution of two-year colleges to the business and technical preparation of entrepreneurs is disproportionately low in comparison to the contribution of four-year colleges and graduate schools. Two-year community college faculty and resources are underutilized in comparison to university faculty, who contribute to a greater extent in incubators sponsored by universities and other organizations in the community. Some problems associated with the participation of two-year college faculty were mentioned by managers interviewed for case studies. Facilitating release time to participate in flexible assignments as mentors and consultants may help to increase the participation of two-year faculty and staff in business incubation activities. It is obvious that two-year technical colleges are preparing individuals—in large part—for traditional employment, and neglecting preparation in entrepreneurship as an alternative career path.

The utilization and development of a business plan appears to be greatly appreciated by entrepreneurs in business incubation and serves as a powerful tool for instructional purposes. Using the concept of a business plan may be helpful to develop a coherent sequence of courses with an entrepreneurship focus at the secondary and two-year college levels where students can learn about authentic entrepreneurial experiences.

It is clear there are a number of opportunities to improve services provided during the start-up, survival, and expansion and growth stages. Business and technical services,

and access to information systems and technology are only some of the opportunities available to support entrepreneurs through their business development.

Implications for Two-Year Postsecondary Institutions

The traditional role of two-year public colleges has been to prepare students for continuing education and productive participation in the workforce. However, current trends both in the workplace and in global markets suggest the need to reassess the role of postsecondary technical education to focus on a more active participation on community economic development (Kent, 1991; Kopececk, 1991). Thus, technical and community colleges need to expand their traditional conception of education and training which may include the development of entrepreneurship and economic development as a comprehensive community endeavor. This need is consistent with current education legislation which focuses on new competencies demanded in high-performance workplaces for both entrepreneurs and their employees, integration of vocational and academic education, linkages between secondary and postsecondary education, and integration of school-based and work-based learning opportunities (Hayward & Benson, 1993; Phelps, 1992; Rosenstock, 1991; Stasz, 1995).

Fostering Entrepreneurship in the Community

Because of the historic development of two-year colleges across the United States, their widespread location, and their close ties with the community, this appears to be an important opportunity for these postsecondary education institutions. An expanded role lies in a more proactive participation in community economic development through support of business incubation services, and in providing a variety of business-related services to promote economic development and entrepreneurship in the community—that is, to provide opportunities for individuals to explore alternative career paths by tapping into their current business and technical skills and facilitating their transition options from school-to-work-to-business ownership.

Other opportunities to participate in economic development efforts include the provision of business services to promote international trade with a focus on consulting services addressing international relations, information on global foreign markets, import/export procedures, step-by-step trading operations, and the creation of local

networks of professionals to support these services (Gell & Crupi, 1991). Similarly, business services to assist in product development, patenting procedures, production, marketing, and management operations of local companies are great opportunities for participation in local economic development efforts. Further, high-tech demonstration centers and practical training on the use of a wide variety of computer applications for business and manufacturing purposes represent strategies for productive alliances with community agencies and industry (Kent, 1991).

Of these opportunities, business incubation offers, perhaps, one of the most comprehensive strategies to promote entrepreneurship, create jobs, stimulate economic growth, and revitalize rural areas or depressed neighborhoods. Business incubators provide commercial space at low cost and provide a host of business services to help entrepreneurs successfully survive the early stages of business development (NBIA, 1991). Business incubators provide opportunities to integrate education and training opportunities with a focus on entrepreneurship, business, management, trade, basic skills, and training. Further, they serve as vehicles to support local business development and jobs by providing consulting services and stimulating business alliances (Carmichael, 1991; NBIA, 1991; Weinberg & Burnier, 1991). However, the total number of incubators sponsored or managed by two-year postsecondary institutions is rather low, according to the National Business Incubation Association (1992).

Various strategies to work in partnership with community players, and the provision of additional services to employers, workers, and students are encouraging but still isolated. Some examples of these strategies include training and education on entrepreneurship, transfer of technology, and entrepreneurial development through participation in business assistance centers and small business incubators. The questions that remain are whether community and technical colleges can revisit and implement an expanded role to prepare students for a productive school-to-work transition, help individuals ease the transition to business owners, support the needs of the established local industry, and become proactive players in the development of the community.

Improving School-to-Work-to-Business Ownership Opportunities

In the context of school-to-work-to entrepreneurial opportunities, the implications are summarized in four areas: (1) integration of entrepreneurship content into two-year curriculum activities, (2) opportunities for exposure and exploration of entrepreneurial

environments, (3) connecting activities with secondary institutions, and (4) the integration of entrepreneurship content in secondary curriculum activities.

First, entrepreneurs reported gaining previous experience related to the activities and operations of their current business primarily through hands-on work in school, internships in similar businesses, part-time jobs in related industry, and mentor programs. However, only a small number of entrepreneurs indicated they had the previous experience needed to explore, start up, or run a business and that they needed further education and training. In fact, only a small minority of entrepreneurs indicated they had learned their business and technical skills in either high school programs or in a community/technical college. Two-year technical colleges focus on preparation for traditional work roles and contribute little to the awareness of and preparation for entrepreneurial opportunities through coursework at various levels (e.g., certificates, associate degrees). Emphasizing the integration of entrepreneurship content into technical curriculum, or as separate complementary or elective coursework, can enhance the participation of two-year college participants in entrepreneurial activities. The role of counselors and instructors in the creation of awareness and a coherent approach to curriculum integration of entrepreneurship content are key elements for this strategy.

Second, participation in business incubation and other related activities in the community provides for broad partnership opportunities which can result in connecting activities for students to explore various business environments. This exposure can be gained through business incubator tours, internships, cooperative arrangements, and even part-time job opportunities with incubator firms. In some instances, business incubation can serve as a "real life" laboratory where entrepreneurs can learn about business operations. In these situations, incubator and college staff benefit from active cooperation and participation. Incentives for incubator firms may include tax write-offs for salaries paid to interns, as well as access to committed and motivated individuals for temporary employment. Students will benefit from the direct exposure while earning academic credit, experience, and some income. Incubator and college staff can use these opportunities for consulting and instructional purposes as they work closely with participating students and entrepreneurs.

Third, opportunities for connecting opportunities with business incubators and businesses in the community for exposure and exploration purposes can also be extended

to secondary students. Business tours, in particular, can be used to provide exploratory opportunities to secondary students in some communities (see Hernández et al., 1996a). As high schools move toward school-to-work programs with enhanced work-based learning opportunities for all students, mentoring opportunities with incubator clients (firms) and managers could reveal important perspectives for youth considering careers in small businesses.

Finally, integration of entrepreneurship into high school curricula could also provide opportunities to learn all aspects of different industries and the new competencies demanded in high-performance workplaces for both entrepreneurs and workers. Some high schools already integrate entrepreneurship in curriculum activities to provide students with opportunities to learn not only about broad occupational clusters within an authentic context, but also about the management and entrepreneurial aspects of the industry (Nielsen-Andrew, 1994; Rosenstock, 1991; SCANS, 1991). This comprehensive approach expands the exposure to various alternative pathways, and students can explore work and entrepreneurial opportunities while integrating academic competencies into a vocational-technical context.

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Appendix A
Survey of Business Incubator Managers

Survey of Incubator Manager

Please answer the following questions to the best of your knowledge. If you do not have a precise answer, give us your best estimate. If a question does not apply to your situation, write "NA" for "not applicable." All responses to this survey from incubators across the nation will be analyzed together. Individual responses will remain anonymous. We appreciate your collaboration and would like to thank you for your participation.

A. About the Incubator

1. Major sponsorship of your incubator? Please estimate percent of incubator sponsorship contributed by sponsors/owners or other stakeholders:

_____ % For-profit company
_____ % Four-year college or university
_____ % Two-year college
_____ % Vocational/technical school
_____ % Economic development corporation or agency
_____ % Social service agency
_____ % PIC/JTPA program
_____ % City government
_____ % County
_____ % State or province
_____ % Other (please specify): _____

1.1. If any of the sponsors is an educational institution, please indicate the kind of contribution provided to your incubator:

_____ Business and technical expertise (advice) to clients
_____ Financial support
_____ Management staff
_____ Education, training, and/or business consultation staff
_____ Building infrastructure
_____ Other (please specify): _____

2. What is the total number of in-house clients currently in the incubator? _____

3. Please indicate the number of minority/female-owned businesses (in percentage):

_____ % Male minority-owned
_____ % Female minority-owned
_____ % White female-owned

B. Incubator Services

4. Do you have a systematic education/training program?

Yes _____ No _____

If yes, please answer questions 4 to 6. If no, please continue with question 7.

5. What is the format of your education and training/consulting program?

_____ Individual on-site training/consultation
_____ Workshops developed upon request from a group of tenants
_____ Series of education/training modules offered periodically
_____ Self-paced training and instruction materials
_____ Seminars offered periodically

6. Who provides your education and training/consulting services?

_____ Businesses in the community
_____ Incubator staff
_____ Client firms in the incubator
_____ Combination of providers including community businesses, private/public institutions, and incubator staff
_____ Educational institutions

7. If an educational institution is providing most education and training/consulting services in your incubator, please indicate the type of institution:

_____ Vocational high school
_____ Vocational, trade, technical, or business school
_____ Public vocational-technical college
_____ Four-year college
_____ Other (please specify): _____

8. In your opinion, what are the skills clients need the most to run their businesses effectively on the average? Please check only one:

_____ Basic skills: reading, writing, computing, and computers
_____ Communication and interpersonal skills
_____ Business skills: management, marketing, and finance
_____ Technical skills: specialized knowledge to improve business operations
_____ Entrepreneurial skills: to plan for expansion and growth
_____ Other (please specify): _____

9. In your opinion, which of the following entities would provide the best education and training services at your incubator? Check all that apply:

_____ Private consulting firms
_____ Nonprofit organizations: volunteer organizations
_____ Educational institutions: community colleges, technical colleges, and so on
_____ Tenant firms providing education and training services
_____ Business incubator staff
_____ Other (please specify): _____

10. Ideally, if you had the time, the necessary skills, and the opportunity to focus your attention on incubator activities of your choice, which activities would you choose? Please check the three most important activities:

_____ In direct intervention with clients (e.g., counseling in related activities)
_____ In creating/maintaining external resources and networks
_____ In fundraising
_____ In building management (e.g., renovation/maintenance management)
_____ In marketing the incubator (recruitment)
_____ In incubator operations (e.g., leases, budgets, collecting rent, staff management, hosting tours, and so on)
_____ In establishing education and training programs
_____ In non-incubator job responsibilities

11. Of the following, what are the three most important areas emphasized when you promote the incubator concept to clients?

_____ Low rent, good facilities
_____ Financial opportunities
_____ Business services: technical and management services
_____ Education and training services
_____ Entrepreneurial environment
_____ Other (please specify): _____

12. In your opinion, what services are being provided most effectively by the incubator? Please check all that apply:

_____ Financing services
_____ Clerical/office services
_____ Management services (e.g., accounting, personnel management)
_____ Technical services
_____ Education and training services
_____ Business space and infrastructure services
_____ Entrepreneurial development (e.g., plans for expansion and growth)
_____ Other (please specify): _____

13. Based on your experience, what is the most frequent reason for business failures?

_____ Lack of basic skills
_____ Lack of communication and interpersonal skills
_____ Lack of business skills
_____ Lack of technical skills
_____ Lack of entrepreneurial skills
_____ Other (please specify): _____

C. About Incubator Clients

Please read the statements and rate them according to the following scale:

Totally disagree = 1 Do not agree = 2 Agree = 3 Totally agree = 4

Example: _____ Incubator telephone service is excellent.
_____ Monthly rent is affordable.
_____ Financial services are available.

14. About availability and access to incubator services . . .

_____ Services are clearly defined and presented to clients in promotional materials.
_____ Frequency, duration, and cost are clearly defined for each service.
_____ Client can choose from various service options according to individual needs or ability to pay.
_____ Education and training services are available for people thinking of starting up a business.

15. During initial contact with clients, on the average . . .

_____ Clients have a well-defined concept of their business product or service.
_____ Clients do not have a written business plan.
_____ Clients need substantial assistance developing business plans.
_____ Clients are open to modification/adjustment of original business idea.

16. About limitations to start up a business, clients on the average . . .

_____ Do not know how to go about starting up a business.
_____ Do not have the necessary financial base to start up a business.
_____ Do not really know what they are getting into.
_____ Do not know where to find assistance on how to start up a business.
_____ Cannot afford market rates for business space.

17. About business product/service, clients on the average . . .

_____ Know how to produce/deliver business goods or services.
_____ Have a good business idea but will rely on someone else to produce/deliver goods or services.
_____ Have identified steps and operations required to produce/deliver goods or services.
_____ Do not need technical assistance to produce/deliver goods or services.

18. About knowledge of potential/target clientele, clients on the average . . .

_____ Know the scope of their potential clientele.
_____ Know the needs of the potential clientele.
_____ Require assistance to identify clientele.
_____ Know where to get information about potential clientele.

19. About marketing of products/services, clients on the average . . .

_____ Have a marketing plan to sell their products/services.
_____ Know how to proceed with marketing plan or marketing strategies.
_____ Need assistance in developing marketing plan.
_____ Do not perceive a marketing plan to be a priority; they think they can do without it.

20. About management skills, clients on the average . . .

_____ Organize their business in a functional manner.
_____ Keep good records of business operations.
_____ Keep operation running smoothly.
_____ Deal and handle crisis on their own effectively.
_____ Do not require assistance on business management.
_____ Are able to motivate employees.

21. About skills to deal with personnel management, clients on the average . . .

_____ Use a screening process when hiring employees.
_____ Are able to effectively resolve conflict with employees.
_____ Follow legal procedures to fire employees.
_____ Hire only family members and relatives.
_____ Evaluate job performance and provide feedback to employees.

22. About skills to handle business finances, clients on the average . . .

_____ Are able to pay rent on time.
_____ Are able to keep cost of business operations at a competitive level.
_____ Are able to offer competitive prices for products/services.
_____ Are able to pay business bills on time.
_____ Require assistance on how to handle business finances.

23. About plans for expansion and growth, clients on the average . . .

_____ Have written plans for expansion and growth.
_____ Take steps to implement plans for expansion and growth on their own.
_____ Do not require assistance to develop plans for expansion and growth.

24. About minority/female-owned business success/failures . . .

_____ Male minority-owned businesses are more likely to fail than the average business going through incubation.
_____ All businesses face the same odds to succeed regardless of owner's ethnic/gender background.
_____ Female-owned businesses are more likely to fail than the average business going through incubation.
_____ Management staff are well-prepared to service minority/female-owned businesses.

25. About education and training/consulting opportunities, on the average . . .

_____ Clients need education/training/consulting opportunities to develop business skills.
_____ Clients need education/training/consulting opportunities to develop technical skills.
_____ Clients need education/training/consulting opportunities to develop entrepreneurial skills.
_____ Clients are willing to pay for education/training/consulting opportunities to develop business, technical, and entrepreneurial skills.

D. Manager's Background Information

26. How long have you been in your current position? _____

27. Please indicate your experience in the following areas. Provide number of years for all that apply:

_____ Business owner
_____ Business management
_____ Property management
_____ Economic development
_____ Nonprofit organizations
_____ Experience as lawyer
_____ Experience as incubator manager
_____ Business consulting
_____ Financial services
_____ Sales/marketing
_____ Government employment
_____ Business start-up experience
_____ Academic experience

28. What is your highest level of education? _____

29. What is your age? _____

30. What is your gender? _____ Male _____ Female

31. What is your ethnicity? _____ Hispanic
_____ Asian/Pacific Islander
_____ Black/Not Hispanic
_____ Native American or Alaskan
_____ White/Not Hispanic

Appendix B
Survey of Business Incubator Clients

Survey of Business Incubator Clients

Please answer the following questions to the best of your knowledge. If you do not have a precise answer, give us your best estimate. If a question does not apply to your situation, write "NA" for "not applicable." All responses to this survey from tenants across the nation will be analyzed together. Individual responses will remain anonymous. We appreciate your collaboration and would like to thank you for your participation.

A. About your Business

Name of business: _____

1. Which one of the following items best describes your type of business?

_____ Service
_____ Retail
_____ Construction-related
_____ Research and development
_____ Medical-related
_____ Wholesale distribution
_____ Other (please specify): _____

_____ Nonprofit
_____ Sales/marketing
_____ Commercial art
_____ Computer-related
_____ Manufacturing
_____ Technology products

2. What is the total number of employees (including business owners) by ethnicity?

Full-time	*Part-time*
_____ Hispanic	_____ Hispanic
_____ Asian/Pacific Islander	_____ Asian/Pacific Islander
_____ Black/Not Hispanic	_____ Black/Not Hispanic
_____ Native American or Alaskan	_____ Native American or Alaskan
_____ White/Not Hispanic	_____ White/Not Hispanic

3. How many employees are relatives or members of your immediate family? _____

4. Which were the greatest obstacles to starting up your business?

_____ Lack of capital: credit or equity investment
_____ Lack of business skills
_____ Lack of technical skills
_____ Did not know how to start up a business

_____ Lack of appropriate space to set up business
_____ Rental space in the open market was too costly
_____ Did not know what business services were available
_____ Trying to do it all by myself without seeking professional assistance
_____ Other (please specify): _____

5. Who was most instrumental in facilitating the process of starting up your business?

_____ Small Business Administration (SBA) staff/materials
_____ Volunteer organization, nonprofit agency
_____ Incubator staff
_____ Incubator tenants through networking
_____ Family and/or friends
_____ Community/technical college staff
_____ Personnel from financial institutions
_____ Attorney, accountant, or other provider of professional services
_____ Other (please specify): _____

B. About Incubator Services

6. About availability and access to incubator services, please check all that apply:

_____ Services are clearly defined and presented to clients in promotional materials.
_____ Services are available for a nominal fee or free of charge.
_____ Frequency, duration, and cost are clearly defined for each service.
_____ Client can choose from various service options according to individual needs or ability to pay.

7. About delivery of educational/training services if any, who is delivering most of these services? Please check all that apply:

_____ Most services are provided by businesses in the community.
_____ Most services are provided by incubator staff.
_____ Most services are provided by a combination of sources.
_____ Most services are delivered by educational institutions.
_____ Have no need for education and training services.
_____ Other (please specify): _____

8. What is the format of education and training services, if any, provided in your incubator? Please check all that apply:

_____ Individual on-site training/consultation
_____ Workshops developed upon request from clients
_____ Series of education/training modules offered periodically
_____ Videos for self-paced training and instruction
_____ Seminars offered periodically

9. In your opinion, what services are being most effectively provided to you by the incubator? Please respond for all incubator-provided services that apply:

_____ Financing assistance
_____ Clerical/office services
_____ Management assistance (e.g., accounting, personnel management)
_____ Technical assistance (e.g., engineering, prototype development, and so on)
_____ Education/training (e.g., seminars, courses)
_____ Business space and infrastructure
_____ Entrepreneurial development (e.g., plans for expansion and growth)
_____ Other (please specify): _____

10. What feature do you like best about the incubator? Please check all that apply:

_____ Offering cheaper rates for rent and services
_____ Providing good services at fair prices
_____ Maintaining facility in good condition year-round
_____ Assisting with financing
_____ Reducing "business stress" through a quality incubation environment
_____ Providing for networking opportunities with other clients
_____ Promoting entrepreneurial skills through education and training services
_____ Helping businesses cluster with other businesses in and out of incubator
_____ Other (please specify): _____

C. Education and Training

11. What is the highest educational level you have attained?

_____ 0-8th grade
_____ 9th-12th grade
_____ High school
_____ Two-year college
_____ Public vocational-technical college
_____ Private or for-profit college
_____ Four-year college
_____ Master's degree
_____ Doctorate

12. Did you receive any kind of education/training on how to start up and/or operate a business prior to joining the incubator?

Yes _____ No _____

13. Have you had any experiences as a student or supervisor in the following programs? Please check all that apply:

_____ Tech Prep programs
_____ Mentor programs
_____ School laboratory work
_____ Apprenticeship programs
_____ Internships in the workplace
_____ Part-time jobs in related businesses
_____ Other (please specify): _____

14. How did you learn your business skills? Please check all that apply:

_____ From a close relative who started or owned a business
_____ Through Small Business Administration (SBA) workshops/materials
_____ From outreach efforts of business incubators
_____ Working for a company for a number of years
_____ Working for family business for a number of years
_____ Attending related programs in a vocational high school
_____ Attending related programs in a community/technical school
_____ Education and training as part of undergraduate/graduate degree
_____ Other (please specify): _____

15. How did you learn the technical skills needed in your business? Check all that apply:

_____ From a close relative who started or owned a business
_____ Working for a company for a number of years
_____ Working for family business for a number of years
_____ Attending related programs in vocational high school
_____ Attending related programs in community/technical school
_____ Education and training as part of undergraduate/graduate degree
_____ Other (please specify): _____

16. In your opinion, what are the most important skills needed to operate your business? Check all that apply:

_____ Business skills: management, marketing, finance, and decision making
_____ Technical skills: knowledge of the business trade
_____ Entrepreneurial skills: business vision to succeed, expand, and grow
_____ Interpersonal skills: interacting effectively with others
_____ Thinking skills: problem solving and logical organization
_____ Basic skills: reading, writing, speaking, and computing
_____ Technological skills: use of computers, software, and latest equipment
_____ Personal skills: hard work, teamwork, and creativity
_____ Other (please specify): _____

17. In which of the following skills do you feel you need further education/training?

_____ Business skills: management, marketing, finance, and decision making
_____ Technical skills: knowledge of the business trade
_____ Entrepreneurship: business vision to succeed, expand, and grow
_____ Interpersonal skills: interacting effectively with others
_____ Thinking skills: problem solving and logical organization
_____ Basic skills: reading, writing, speaking, and computing
_____ Technological skills: use of computers, software, and latest equipment
_____ Personal skills: hard work, teamwork, creativity, and time management
_____ Other (please specify): _____

D. Doing business

Please read statements from 18 to 31 and rate them according to the following scale:

Totally disagree = 1 Do not agree = 2 Agree = 3 Totally agree = 4

Example: _____ Incubator telephone service is excellent.
_____ Monthly rent is affordable.
_____ Financial services are available.

18. When I entered the incubator . . .

_____ I had a well-defined concept of my business products/services.
_____ I did not have a written business plan.
_____ I needed substantial assistance developing a business plan.
_____ I was open to modification/adjustment to my original business idea.

19. About limitations to start-up my business . . .

_____ I did not know how to go about starting up a business.
_____ I did not have the necessary financial base to start up a business.
_____ I did not really know what I was getting into.
_____ I did not know where to find assistance on how to start up a business.
_____ I could not afford market rates for business space.

20. About business product/service, when I started up my business . . .

_____ I knew how to produce/deliver business goods or services.
_____ I had a good business idea but had to rely on someone else to produce or deliver goods or services.
_____ I had identified steps and operations required to produce/deliver goods or services.
_____ I did not need technical assistance to produce/deliver goods or services.

21. About knowledge of target/potential clientele, when I started up my business . . .

_____ I knew the scope of my target/potential clientele.
_____ I knew the needs of my target/potential clientele.
_____ I required assistance to identify clientele.
_____ I did not know where to get information about potential clientele.

22. About marketing of product/services, when I started up my business . . .

_____ I had a marketing plan to sell my product/services.
_____ I knew how to proceed with marketing plan or marketing strategies.
_____ I needed assistance to develop marketing plan.
_____ A marketing plan was not a priority.

23. About the management of my business . . .

_____ My business is organized in a functional manner.
_____ I do not keep good records of business operations.
_____ I keep my business operation running smoothly.
_____ I am able to handle business management issues on my own effectively.
_____ I do not require assistance on business management.

24. About personnel management . . .

_____ I use a screening process when hiring employees.
_____ I am able to effectively resolve conflict with employees.
_____ I follow legal procedures to fire employees.
_____ I hire only family members and relatives.
_____ I evaluate job performance and provide feedback to employees.
_____ I am able to motivate employees.

25. About handling business finances . . .

_____ I am always able to pay business bills.
_____ I am able to keep cost of business operations at a competitive level.
_____ I am able to offer competitive prices for products/services.
_____ I am able to handle money operations effectively.
_____ I have received assistance on how to handle business finances.
_____ I need assistance handling business finances.

26. About plans for expansion and growth . . .

_____ I have written plans for expansion and growth.
_____ I have taken steps to implement plans for expansion and growth.
_____ I need assistance to develop written plans for expansion and growth.

27. About communication and interpersonal skills . . .

_____ I can communicate effectively with people.
_____ I have problems negotiating agreements to resolve conflicts.
_____ I need to improve my skills to communicate in writing with people.
_____ I have problems interacting effectively with customers and employees.

28. About computer skills . . .

_____ I am familiar with basic use of computers in the workplace.
_____ I work comfortably with cutting-edge computer technology.
_____ I feel I need education and training to work with computers.

29. About problem solving . . .

_____ I recognize when something is not working right in my business operation.
_____ I am able to identify possible causes of problems in my business on my own.
_____ Whenever I have a problem, I devise a plan of action to resolve it.
_____ I evaluate and monitor progress of solutions to problems.

30. About computing skills . . .

_____ I am able to make reasonable estimates of arithmetic results without a calculator.
_____ I use tables, graphs, diagrams, and charts to obtain or convey quantitative information.
_____ I have problems figuring out percentages.

31. About education and training opportunities . . .

_____ I feel I need further education and training to develop business, technical, and entrepreneurial skills.
_____ I am willing to pay for education/training opportunities to develop business, technical, and entrepreneurial skills.
_____ I am aware of educational opportunities in my community to develop entrepreneurial skills.

E. Personal Background of Owner

32. Please indicate your gender: Male _____ Female _____

33. What is your age?

_____ Between 18-25 years old
_____ Between 26-35 years old
_____ Between 36-50 years old
_____ 51+ years old

34. What is your ethnic background?

_____ Hispanic
_____ Asian/Pacific Islander
_____ Black/Not Hispanic
_____ Native American or Alaskan
_____ White/Not Hispanic